fourth number in man. In the monkey, cutting across the posterior root of the fifth lumbar abolishes the knee-jerk at once, and it is abolished not only by section of the posterior root alone, but by section of the anterior alone. Section of half the posterior root or ganglion, likewise serves to abolish the jerk at once. The writer's experiments also corroborate the fact that division of the spinal cord in cats and dogs renders the knee-jerk brisk. In the monkey he found the knee-jerks to completely disappear in the course of a few minutes after complete division of the cord at the level of the ninth thoracic root. The knee-jerk reappeared, however, at the end of three weeks, was slight at first, gradually became brisk, and was decidely exaggerated at the end of four months' time. After transverse division of the cord of the monkey at the level of the second lumbar nerve root, the knee-jerk disappeared in a similar manner, and did not reappear, although observations were continued for longer than three months. J. C.

PATHOLOGICAL.

CHANGES IN THE NERVOUS SYSTEM, PARTICULARLY IN THE PERIPHERAL NERVES OF THE DOG AFTER EXTIRPATION OF THE THYROID GLAND.

Joseph Kopp (Virchow's Archives, vol. cxxviii, No. 2). The author took two dogs for experiment, in 1887 and 1888, in which the thyroid gland had been removed by Kocher four years before. The ordinary clinical picture was apparent. As Langhaus had pointed out, the change in the peripheral nerves confined itself to the motorial nerves, therefore K.'s examination was limited to these parts. The change in the nerve seemed to show itself in areas or districts. By weak magnification one could see in preparations stained according to Weigert, running lengthways of the nerve bundle, a whitish path where normally is seen a dark colored bundle that is just within the perineurium. In this clear or whitish area are to be seen fibres that are of a light brown color and many little points and specks or spots. With a higher magnification it can be seen that part of these fibres are connective-tissue, fibers and a part comes from cross-section through the lamella, to which clings some of the perineurium and endoneurium. The specks and points seem to be nuclei, and especially oval nuclei which are distinctly nucleated or granular. The most striking thing is the peculiar variety of cell as described by Langhaus, which are distributed in large numbers over the entire affected areas. They are called or considered by their discoverer as single and multi-locular white cells. The districts that are affected lay for the most part in the inner surface of the perineurium. They appear of the form of a cylindrical space or a segment of such a cylinder. Very seldom the affected areas lay within the bundles of fibres. The thickness of the affected area varied from 0.007 to 0.13 mm. The diameter of the affected bundles varied from 0.1 to 0.8. mm.

Affected areas were found in the hypoglossus, musculocutaneous, radial, median, ulnar, crural, ischiadic, and posterior tibial. As to the change in the central nervous system the author mentions that in the cortex of the cerebrum an ordinary degeneration was found. Everything went to prove that the dog previous to the beginning of the experiments was in a perfectly healthy condition. Concerning the lymphid infiltration in the neighborhood of the ganglionic cells as was described by Rogowitsch, the author can say nothing. In some places he found a swelling of the axis-cylinders, as, for instance, in the medulla oblongata, especially in the pyramids, in the fillet, in the olivary fibres, in the lateral acusticus bundles, and in some fibres of the formatio reticularis. A similar condition was found in the pyramidal bundles of the spinal cord. But as one went downward in the cord the swelling in the axis-cylinder became less apparent.—*Neuro. Centb.*, June 1, 1892. J. C.

MULTIPLE NEURITIS.

At the meeting of the Society of Internal Medicine of Berlin, held November 2, 1891, Fränkel reported three interesting cases of multiple neuritis.

1. A man, fifty years of age, an inebriate, presented concurrently with the ordinary symptoms of neuritis, a very marked amnesia.

He remarked that psychical symptoms are very infrequent in multiple neuritis, and should always be referred to a lesion of the cerebrum. In cases of this kind the general condition of the patient is habitually bad; there is much prostration. This was so in the case in question; the patient grew more and more feeble, and succumbed.